



## ABSTRACT AND BIOGRAPHY

### **Space System Development; Lessons Learned**

This presentation is designed to provide an insight into the causes of space system mishaps and near-misses. An examination of the history of such events reveals that the root causes remain largely unchanged over time and across many, diverse programs. Lessons to be learned from such root causes can help space systems designers to:

- Analyze the detailed case histories of previous mishaps to identify system-specific lessons, and
- Translate these lessons into concrete strategies that will minimize or eliminate root causes.

Topics ranging from lessons in general management approaches to very detailed actual mishap case histories are presented. The instructors share their combined eighty plus years of experience in space system development, and personal involvement with many of the mishaps presented, to provide unique insights from the perspective of those who were there and have the scars to prove it. They identify all sources of information such as websites, failure reports, interviews, and consultation with other subject matter experts. Finally, they share their views on why the lessons are frequently not learned.

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Joe Nieberding has over 42 years of management and technical experience in leading and participating in NASA independent review teams, and in evaluating NASA advanced space mission planning. During his 35 years at NASA Glenn, he directed numerous studies to select transportation, propulsion, power, and communications systems for advanced NASA mission applications. His Advanced Space Analysis Division led all exploration advanced concept studies for Glenn. In addition, he was a launch team member on over 65 NASA Atlas/Centaur and Titan/Centaur launches, and is a widely recognized expert in launch vehicles and advanced transportation architecture planning for space missions.